REMARKS

This is a full and timely response to the non-final Official Action mailed June 16, 2005. Reconsideration of the application in light of the above amendments and the following remarks is respectfully requested.

Status of Claims:

By the forgoing amendment, the specification and various claims have been amended. Claims 59 and 60 have been withdrawn from consideration pursuant to a Restriction Requirement. No claims have been cancelled, and new claim 67 has been added. Thus, claims 1-58 and 61-67 are currently pending for the Examiner's consideration.

The recent Office Action indicated that claims 11, 25 and 26 contain allowable subject matter. Applicant wishes to thank the Examiner for this indication of allowable subject matter.

Restriction Requirement:

Applicant hereby affirms the election of claims 1-58 and 61-66 made June 6, 2005 by Mr. Tim Myers, Esq. of Hewlett-Packard Co. Consequently, withdrawn claims 59 and 60 are so marked above.

Objection to the Specification:

The recent Office Action objected to the specification due to a typographical error on page 14, line 1 (paragraph 0049). This error has been corrected by the present amendment.

Thus, recognition that the specification is no longer subject to this objection is respectfully requested.

Objection to Claims:

The recent Office action objected to claims 2, 4 and 27 due to minor informalities, i.e., language allegedly lacking antecedent basis. Consequently, claims 2, 4 and 27 have been amended herein to correct the cited informalities. The amendments made to claims 2, 4 and 27 in this regard do not, and are not intended to, narrow or alter the scope of any claim so amended. Therefore, notice that claims 2, 4 and 27 are no longer subject to this objection is respectfully requested.

35 U.S.C. § 112, Second Paragraph:

Claims 37-44 were rejected in the recent Office Action under 35 U.S.C. § 112, second paragraph. This rejection is also based on language in the rejected claims allegedly lacking antecedent basis. Accordingly, claims 37-44 have been amended herein to depend from claim 36, which provides proper antecedent basis for the recitations of claims 37-44. Following entry of this amendment, the rejected claims should be in conformance with § 112, second paragraph, and notice to that effect is respectfully requested. The amendments made to claims 37-44 in this regard do not, and are not intended to, narrow or alter the scope of any claim so amended.

Prior Art:

With regard to the prior art, claims 1, 5-7, 27-29, 33-35, 45, 46, 61, 64 and 65 were rejected as anticipated under 35 U.S.C. § 102(b) by U.S. Patent No. 5,671,007 to Songer ("Songer"). This rejection is respectfully traversed for at least the following reasons.

Claim 1 recites:

> A method of displaying an image frame in three dimensions (3D) or in two dimensions (2D) with a single light engine, said method comprising:
> selecting between a 2D mode of operation and a 3D mode of operation;
> generating and outputting a left image sub-frame and a right image sub-frame during a frame period if said 3D mode of operation is selected; and
> generating and outputting a 2D image frame during said frame period if said 2D mode of operation is selected;
> wherein said left image sub-frame defines a visual perspective of a left eye and said right image sub-frame defines a visual perspective of a right eye.

In contrast, Songer does not teach or suggest "generating and outputting a 2D image frame during said frame period if said 2D mode of operation is selected." In fact, the method taught by Songer does not *ever* include generating and outputting *a 2D image frame*. To the contrary, Songer only teaches that left and right image sub-frames are generated and output. According to Songer, "[t]he plurality of left-eye images and the plurality of right-eye images appear three-dimensional when viewed through the pair of viewing glasses, and appear two-dimensional when viewed without the glasses." (Songer, abstract). While the viewing glasses allow a user to see the image in 2D or 3D, the underlying Songer method only generates and outputs left and right sub-frames, rather than selectively outputing left and right sub-frames *or* a 2D image frame, as recited in claim 1. Consequently, Songer does not teach or suggest "generating and outputting a 2D image frame during said frame period if said 2D mode of operation is selected."

"A claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art

reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). See M.P.E.P. § 2131. For at least this reason, the rejection of claim 1 and its dependent claims based on Songer should be reconsidered and withdrawn.

Independent claim 27 recites:

> A display system with a selectable mode of operation for displaying an image frame in three dimensions (3D) or in two dimensions (2D), said system comprising:
> a spatial light modulator; and
> an image processing unit configured to control said spatial light modulator in a selected mode of operation which is either a 3D mode of operation or a 2D mode of operation;
> wherein if said selected mode of operation is said 3D mode of operation, said image processing unit outputs to said spatial light modulator a left image sub-frame carrying a left eye perspective and a right image sub-frame carrying a right eye perspective during a frame period and, if said selected mode of operation is said 2D mode of operation, said image processing unit outputs to said spatial light modulator a 2D image frame to be displayed on a viewing surface during said frame period.

In contrast, as demonstrated above, Songer does not teach or suggest the claimed image processing unit where "if said selected mode of operation is said 3D mode of operation, said image processing unit outputs to said spatial light modulator a left image sub-frame carrying a left eye perspective and a right image sub-frame carrying a right eye perspective during a frame period and, if said selected mode of operation is said 2D mode of operation, said image processing unit outputs to said spatial light modulator a 2D image frame." The image processing unit taught by Songer only outputs left and right sub-frames.

As before, "[a] claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). See M.P.E.P. § 2131. For at least this reason, the rejection of claim 27 and its dependent claims based on Songer should be reconsidered and withdrawn.

Independent claim 61 recites:

> A system for displaying an image frame in three dimensions (3D) or in two dimensions (2D) with a single light engine, said system comprising:
> means for selecting between a 2D mode of operation and a 3D mode of operation;
> means for generating a left image sub-frame and a right image sub-frame if said 3D mode of operation is selected; and
> means for generating a 2D image frame if said 2D mode of operation is selected;
> wherein said left and right image sub-frames are left and right perspectives during a frame period if said 3D mode of operation is selected and said 2D image frame is displayed during said frame period if said 2D mode of operation is selected;
> wherein said 2D image frame does not comprise sub-frames having different perspectives.

(emphasis added).

As demonstrated above, Songer fails to teach or suggest a system in which the "light engine" can selectively operate in a 2D or 3D mode, where the 3D mode employs means for generating left and right image sub-frames representing left and right perspectives and the 2D mode employs means for generating a 2D image that does not include sub-frames having different perspectives. The image processing unit taught by Songer *only* outputs left and right sub-frames.

As before, "[a] claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). See M.P.E.P. § 2131. For at least this reason, the rejection of claim 61 and its dependent claims based on Songer should be reconsidered and withdrawn.

Claims 19-24, 48, 49, 55, 56 and 66 were rejected as anticipated under 35 U.S.C. § 102(b) by U.S. Patent Application Publication No. 2003/0112507 to Divelbiss et al. ("Divelbiss"). For at least the following reasons, this rejection is respectfully traversed.

Original independent claim 19 recites:

> A method of displaying an image in three dimensions during a frame period, said method comprising:
> generating a left image sub-frame and a right image sub-frame, said left image sub-frame defining a visual perspective of a left eye and said right image sub-frame defining a visual perspective of a right eye for said image;
> displaying said left image sub-frame utilizing a first plurality of colors; and
> displaying said right image sub-frame utilizing a second plurality of colors;
> wherein said first plurality of colors is distinct from said second plurality of colors.

(mphasis added).

In contrast, Divelbiss does not teach or suggest a method in which left and right image sub-frames are displayed utilizing "distinct" sets of colors. In this regard, the Office Action cites Divelbiss at paragraph 222. This portion of Divelbiss merely discusses the polarized glasses that a viewer wears when watching three dimensional images. According to Divelbiss at paragraph 222, the glasses use "a color filter material that transmits green light when the input light is linearly polarized in the P1 state and transmits magenta light (the combination of red and blue) when the input is P2 linearly polarized." Although Divelbiss does not expressly say so, this would one lead one of skill in the art to conclude that one sub-frame is displayed using red and blue, and another sub-frame is displayed using green. Green is not "a second *plurality* of colors" as claimed. To the contrary, Divelbiss teaches using, *at most*, these three colors (red, green and blue). (*See*, Divelbiss at paragraphs 0048-0050, 0123 teaching a four-section color wheel with red, green, blue and clear sections). Consequently, Divelbiss fails to teach or suggest, the claimed left and right image sub-frames that are displayed utilizing "distinct" pluralities of colors.

As before, "[a] claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). See M.P.E.P. § 2131. For at least this reason, the rejection of claim 19 and its dependent claims based on Divelbiss should be reconsidered and withdrawn.

Similarly, independent claim 48 recites:

> A 3D imaging device, comprising:
> an image processing unit configured to generate image sub-frame data; and
> a color modulator coupled to said image processing unit configured to generate a plurality of image sub-frames based on said image sub-frame data;
> wherein said color modulator generates a first plurality of colors for at least one image sub-frame of said plurality of image sub-frames and a second plurality of colors, distinct from said first plurality of colors, for at least one other image sub-frame of said plurality of image sub-frames.

(emphasis added).

As demonstrated above, Divelbiss fails to teach or suggest a color modulator that "generates a first plurality of colors for at least one image sub-frame of said plurality of image sub-frames and a second plurality of colors, distinct from said first plurality of colors, for at least one other image sub-frame of said plurality of image sub-frames." Divelbiss does not teach or suggest using distinct pluralities of colors to generate different sub-frames.

As before, "[a] claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). See M.P.E.P. § 2131. For at least this reason, the rejection of claim 48 and its dependent claims based on Divelbiss should be reconsidered and withdrawn.

Additionally, independent claim 66 recites:

> A system for displaying an image in three dimensions during a frame period, said system comprising:
> means for generating a left image sub-frame and a right image sub-frame, said left image sub-frame defining a visual perspective of a left eye and said right image sub-frame defining a visual perspective of a right eye for said image;
> means for displaying said left image sub-frame utilizing a first plurality of colors; and
> means for displaying said right image sub-frame utilizing a second plurality of colors;
> wherein said first plurality of colors is distinct from said second plurality of colors.

(emphasis added).

As demonstrated above, Divelbiss fails to teach or suggest a system comprising means for displaying left and right image sub-frames utilizing distinct first and second pluralities of colors. As before, "[a] claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). See M.P.E.P. § 2131. For at least this reason, the rejection of claim 66 based on Divelbiss should be reconsidered and withdrawn.

Additionally, dependent claim 20 recites "wherein said first plurality of colors and said second plurality of colors comprise different sets of primary colors." Claim 49 recites similar subject matter.

As demonstrated, Divelbiss does not teach or suggest first and second pluralities of colors. Moreover, Divelbiss certainly does not teach or suggest "different sets of primary colors" as claimed. Divelbiss only teaches a single set of primary colors, red, green and blue. (Divelbiss, paragraph 0048-0059). For at least this additional reason, claims 20 and 49 should be held clearly patentable over Divelbiss.

Claim 2 was rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and U.S. Patent No. 5,870,137 to Stuettler ("Stuettler"). Claims 3 and 4 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer, Stuettler and U.S. Patent Application Publication No. 2003/0234790 to Hochmuth et al. ("Hochmuth"). These rejections are respectfully traversed for at least the same reasons given above with respect to claim 1.

Claims 8, 9, 10 and 18 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and Divelbiss. As demonstrated above, Songer and Divelbiss do not teach or suggest the subject matter of the claims as alleged. Therefore, this rejection is respectfully traversed for at least the same reasons given above with respect to independent claims 1 and 19.

Claim 12 was rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and U.S. Patent Application Publication No. 2005/0037843 to Wells et al. ("Wells"). Claim 13 was rejected being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and Anderson (of record). Claim 14 was rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and Sato (of record). These rejections are respectfully traversed for at least the same reasons given above with respect to claim 1.

Claim 15 was rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and U.S. Patent No. 6,850,352 to Childers ("Childers").

Claims 16 and 17 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer, Childers and Bolas (of record). Claim 53 was rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Divelbiss and Childers. These rejections are all traversed under 35 U.S.C. § 103(c).

35 U.S.C. § 103(c) states:

> Subject matter developed by another person, which qualifies as prior art only under one or more of subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

The present application, which includes Childers as an inventor, was filed April 1, 2004 and has been assigned to Hewlett-Packard Development Company. The Childers patent was filed January 8, 2004 and has also been assigned to Hewlett-Packard Development Company as indicated on the front page of the patent. This assignment is recorded at reel/frame 014887/0511. Thus, the Childers patent would be prior art against the present application only under 35 U.S.C. § 102(e). Additionally, Applicant hereby states for the record that the subject matter of Childers and the invention here claimed were both, at the time the invention was made, owned by Hewlett-Packard Development Company or subject to an obligation of assignment to Hewlett-Packard Development Company. Therefore, under 35 U.S.C. § 103(c), the Childers patent cannot be used as prior art under § 103 against the present application. Consequently, withdrawal of the rejection of claims 15-17 and 53 is respectfully requested.

Claim 30 was rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and Stuettler. Claims 31 and 32 were rejected as being

unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer, Stuettler and Hochmuth. These rejections are respectfully traversed for at least the same reasons given above with respect to claim 27. Additionally, claim 30 recites:

> a first buffer for storing said left image sub-frame data to be used by said spatial light modulator to generate said left image sub-frame;
> a second buffer for storing said right image sub-frame data to be used by said spatial light modulator to generate said right image sub-frame; and
> a third buffer for storing said 2D image frame data to be used by said spatial light modulator to generate said 2D image frame.

As demonstrated above, Songer only teaches outputting 3D image sub-frames, not 2D image frame data. Consequently, the data output of Songer cannot be separated into the categories of left and right sub-frame data and 2D image frame data. Therefore, irrespective of the number of buffers taught by Stuettler, Songer could not be modified to include different buffers for different types of image data, namely sub-frame data and 2D image frame data, because Songer does not produce such different types of image data. Therefore, the proposed combination of Songer and Stuettler would be unworkable and would not have been obvious to one skilled in the art.

"Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed Cir. 1992)." M.P.E.P. § 2143.01 (emphasis added). For at least this additional reason, the rejection of claim 30, and its dependent claims, should be reconsidered and withdrawn.

Claim 36 was rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and Divelbiss. As demonstrated above, Songer and Divelbiss do not teach or suggest the subject matter of the claims as alleged. Therefore, this rejection is respectfully traversed for at least the same reasons given above with respect to independent claims 1 and 19.

Claim 47 was rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and Anderson. Claims 50 and 54 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Divelbiss and Stuettler. Claims 51 and 52 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Divelbiss and Bolas (of record). Claims 57 and 58 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Divelbiss and Songer. Claims 62 and 63 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Songer and Stuettler. These rejections are all respectfully traversed for at least the reasons given above with respect to the independent claims from which each claim here rejected respectively depends.

Conclusion:

The newly added claim is thought to be patentable over the prior art of record for at least the same reasons given above with respect to the original independent claims. Therefore, examination and allowance of the newly added claim is respectfully requested.

For the foregoing reasons, the present application is thought to be clearly in condition for allowance. Accordingly, favorable reconsideration of the application in light of these remarks is courteously solicited. If the Examiner has any comments or suggestions which could place this application in even better form, the Examiner is requested to telephone the undersigned attorney at the number listed below.

Respectfully submitted,

DATE: 12 September 2005

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